

**WHAT IS CLAIMED IS:**

1. A nanomaterial comprising chalcogenide with aspect ratio greater than 1 and less than 1,000,000.
2. The nanomaterial of claim 1 wherein the nanomaterial is non-stoichiometric.
3. The nanomaterial of claim 1 wherein the nanomaterial is stoichiometric.
4. The metallic nanomaterial of claim 1 wherein the nanomaterial comprises an element selected from the group: silver, gold, platinum, palladium, ruthenium, copper, tantalum, niobium, indium and rare earth.
5. A product comprising nanomaterial of claim 1.
6. A metallic nanomaterial with aspect ratio greater than 1 and less than 1,000,000.
7. A product comprising nanomaterial of claim 6.
8. An inorganic nanomaterial comprising nitrogen with aspect ratio greater than 1 and less than 1,000,000.
9. A product comprising nanomaterial of claim 8.
10. An non-stoichiometric nanomaterial comprising oxygen wherein the nanomaterial has an aspect ratio greater than 1 and less than 1,000,000.
11. A product comprising nanomaterial of claim 10.
12. An inorganic nanomaterial comprising phosphorus with aspect ratio greater than 1 and less than 1,000,000.
13. A product comprising nanomaterial of claim 12.

14. A polymeric nanomaterial with aspect ratio greater than 1 and less than 1,000,000.
15. A product comprising nanomaterial of claim 14.
16. A non-oxide nanomaterial with plate like morphology.
17. The non-oxide nanomaterial of claim 16 wherein the nanomaterial is non-stoichiometric.
18. A product comprising the nanomaterial of claim 16.
19. A nanomaterial with faceted morphology.
20. A product comprising the nanomaterial of claim 19.